Bronze Poplar Borer

Attacks stressed aspen

Name and Description—Agrilus liragus Barter and Brown [Coleoptera: Buprestidae]

The bronze poplar borer is a member of a family commonly known as flatheaded or metallic boring beetles. The adult beetle is blackish with a faint metallic green lustre and shiny, bronzed underside, 1/4-1/2 inch (7-13 mm) long, narrow, and slightly flattened. Eggs are cream-colored, oval, and about 1/20 by 1/33 inch (1.2 by 0.8 mm). The larva is much longer than the adult, narrow and flat, about 1 1/2 by 1/10 inch (30-40 by 2-3.5 mm), and its the prothorax is slightly wider than the rest of the body (figs. 1-2). The rear segment has a pair of dark, anal spines.

Host—The bronze poplar borer typically attacks weakened aspen. Trees that are partially girdled, such as those heavily gnawed by elk or carved by campers, are commonly attacked. Overmature or injured trees, those damaged by poplar borer (*Saperda calcarata*) or cankers, and young trees released from the dominance of other trees are also susceptible to attack.

Life Cycle—The life cycle typically takes 2 years, though borers in severely weakened trees in southerly locations usually complete a generation in 1 year. Adults emerge from June to August. They feed on aspen foliage for about one week before laying eggs in bark crevices in groups of five to eight. Eggs hatch in about two weeks. Young larvae bore through bark to the cambium. Feeding is mostly along the cambium, though larvae occasionally move into the phloem and cortex. Generally, larvae bore into the

wood to molt and then come back to the cambium. A completed gallery typically shows four such departures, suggesting five instars. Pupation occurs in outer sapwood or thick bark in spring.

Damage—Larval galleries are 1/50-1/8 inch (0.6-3.0 mm) wide and can be over 39 inches (1 m long), but they are never straight. In severely weakened trees, galleries usually meander without any distinct pattern. In vigorous hosts, a zig-zag or sinuate gallery is the rule (figs. 3-6). Galleries weave back and forth across the grain with successive loops closer together in the most vigorous hosts. Adult emergence holes in the outer bark are distinctly D-shaped. Multiple attacks may contribute to mortality or result in girdling and direct mortality.



Figure 1. Larva of the bronze poplar borer, slightly displaced from its gallery on the underside of live bark. *Photo: Mike Ostry, USDA Forest Service, Bugwood.org.*



Figure 2. Larva of the bronze poplar borer.

Photo: Jim Worrall, USDA
Forest Service.



Figure 3. External appearance of *Agrilus* sp. attack on a live aspen. *Photo: Jim Worrall, USDA Forest Service.*



Figure 4. Fresh gallery in live bark with frass. *Photo: Jim Worrall, USDA Forest Service.*



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Figure 5. When the cambium produces callus in a gallery in live bark, a raised pattern of wood is left behind after the bark deteriorates. *Photo: Jim Worrall, USDA Forest Service.*



Figure 6. Typical zig-zag gallery. A gallery generally extends down from the origin and is packed with frass. Galleries tend to be more random in severely weakened trees. *Photo: James Solomon, USDA Forest Service, Bugwood.org.*

Management—Maintenance of high tree vigor reduces the likelihood of attack, as does prevention of mechanical injuries and diseases. Natural control includes a variety of egg and larval parasites. Woodpeckers are particularly important. According to one study, up to 40% of larvae, pupae, and young adults are taken by woodpeckers.

^{1.} Jones, J.R.; DeByle, N.V.; Bowers, D.M. 1985. Insects and other invertebrates. In: DeByle, N.V.; Winokur, R.P., eds. Aspen: ecology and management in the western United States. Gen. Tech. Rep. RM-119. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station: 107-114 p.

^{2.} Solomon, J.D. 1995. Guide to insect borers in North American broadleaf trees and shrubs. Agricultural Handbook 706. Washington, DC: U.S. Department of Agriculture, Forest Service. 747 p. Online: http://www.forestpests.org/borers.